AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (Currently Amended) An active standby system for a control system, the active standby system comprising:

a first programmable logic controller and a second programmable logic controller, the first programmable logic controller being in an active state, the second programmable logic controller being in a standby state ~~each controller having an operating state~~;

an IO module;

a network connector; and,

a high speed fiber optic network cable for operably connecting the first programmable logic controller, the second programmable logic controller and the IO module, wherein a signal is transmitted over the high speed fiber optic network cable at a rate of at least 100 Mb/s.

2. (Currently Amended) The active standby system of claim 1 wherein each programmable logic controller comprises:

a processor;

a co-processor;

an operating system executed by the processor; and,

a co-operating system executed by the co-processor wherein the operating system and the co-operating system cooperate to transfer data between the first controller, the second controller and the IO module.

3. (Original) The active standby system of claim 2 wherein the operating system is embedded in the processor.

4. (Currently Amended) The active standby system of claim 1, wherein each programmable logic controller further comprises a network identifier and the network identifier of each programmable logic controller is selected in response to the operating state of its respective programmable logic controller.

5. (Original) The active standby system of claim 4 wherein the network identifier is an Internet Protocol address.

6. (Original) The active standby system of claim 4 wherein the network address identifier is a Media Access Control address.

7. (Original) The active standby system of claim 1 wherein the network connector is a hub for controlling signal communication over the fiber optic network.

8. (Original) The active standby system of claim 7 further comprising a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time.

9. (Original) The active standby system of claim 1 wherein the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network.

10. (Currently Amended) A method of providing an active standby control system comprising the steps of:

providing a first programmable logic controller and a second programmable logic controller~~, each controller having an operating state~~ the first programmable logic controller being in an active state, the second programmable logic controller being in a standby state;

providing an IO module; and,

operably connecting the first programmable logic controller, the second programmable

logic controller and the IO module through a connector and a fiber optic cable, the operably connected first programmable logic controller, the second programmable logic controller, the IO module, the fiber optic cable and the connector forming a sub-network; wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s.

11. (Original) The method of providing an active standby control system of claim 10 further comprising controlling the transmission of the signal on the sub-network.

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12. (Original) The method of providing an active standby control system of claim 11 wherein the step of controlling signal communication on the sub-network comprises a hub.

13. (Original) The method of providing an active standby control system of claim 12 further comprising using a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time.

14. (Original) The method of providing an active standby control system of claim 10 wherein the step of controlling signal communication on the sub-network comprises a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism on the sub-network.

15. (Currently Amended) A method of providing an active standby control system comprising the steps of:

a first programmable logic controller and a second programmable logic controller, the first programmable logic controller being in an active state, the second programmable logic controller being in a standby state ~~each controller having an operating state~~;

providing an IO module;

operably connecting the first programmable logic controller, the second programmable logic controller, the IO module and a network connector with a fiber optic cable and forming a

sub-network wherein data is transferred throughout the sub-network at a rate of at least 100 Mb/s;

controlling signal communication over the fiber optic sub-network;

assigning a network identifier to each controller;

placing ~~one~~ the first programmable logic controller in primary mode and the ~~other~~ the second programmable logic controller in secondary mode;

sensing the operating state of ~~each~~ the first programmable logic controller, wherein the network identifier of ~~each~~ the first programmable logic controller is selected in response to the operating state of ~~each respective~~ the first programmable logic controller;

exchanging the network identifiers between the first programmable logic controller and the second programmable logic controllers; and,

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transmitting a reverse address resolution protocol (RARP) message.

16. (Currently Amended) The method of claim 15 wherein each programmable logic controller comprises:

a processor;

a co-processor;

an operating system executed by the processor; and,

a co-operating system executed by the co-processor wherein the operating system and the co-operating system cooperate to transmit data throughout the sub-network.

17. (Original) The method of claim 15 wherein the co-processor is embedded within the processor.

18. (Original) The method of claim 15 wherein the operating system is embedded.

19. (Original) The method of claim 15 wherein the sub-network is an Ethernet network.

20. (Original) The method of claim 15 wherein the network identifier is an Internet Protocol address.

21. (Original) The method of claim 15 wherein the network identifier is a Media Access Control address.

22. (Original) The method of claim 15 wherein the network connector is a hub for controlling signal communication over the fiber optic network.

23. (Original) The method of claim 15 further comprising a master-slave type application layer protocol to ensure that only one signal is being transmitted at a time.

24. (Original) The method of claim 15 wherein the network connector is a switch for controlling signal communication over the fiber optic network cable to avoid signal collisions and maintain determinism throughout the fiber optic network.